Land Application Calculation Form

Is this a continuation of another form (circle appropriate response)? Yes No

	A	B	C	D	E	F	G
	Contaminant	**Label Used** (product name and EPA reg. no)	**Max. or Ave. Concentration** (ppm)	**Total Quantity** (pounds)	**Labeled Crops**	**Application Rate** (pounds/acre)	**Minimum Acreage Required**
	Example: Metolachlor	Dual EPA # 100-673	120 ppm	100 yds^3/29lb	i.e. corn	0.75 #/A	39 A
1							
2							
3							
4							
5							
6							

Using the calculation form above, what is the selected crop:	What are limiting pesticides for the selected crop:
Minimum application acreage required:	Application timing (season):
Describe the proposed equipment for land spreading, and how the equipment will be calibrated:	

Land Application Calculation Form Instructions

General Instructions:

- Soil from agricultural chemical incidents may not be land applied after the excavated soil pile is frozen. Excavated soil may be land applied to a frozen ground surface only if the applied soil can be immediately incorporated, and if there are no label restrictions against incorporation for the limiting product. For example, the Prowl label prohibits pre-plant incorporation on corn.

  If the contaminated soil cannot be land applied immediately following excavation, the pile must be protected from precipitation by a waterproof covering weighted at the edges to prevent being blown off by high winds. The excavated soil pile should be located in an area not subject to surface runoff, or protected by a dike or berm to redirect surface runoff away from the pile.

- In most cases composite soil samples must be collected from the stockpiled excavated soil and analyzed to establish the types and quantities of chemicals in the soil pile. The resultant concentrations are then used to calculate the quantity of the chemicals present. Composite samples are to be collected which will adequately characterize the interior and the exterior of the pile. To determine the number of composite samples required use the following general guidance:

Volume of Soil in Stockpile (Cubic yards)	Minimum Number of Composite Samples
<200	1
200 - 500	2
500 - 1000	3
1000 - 2000	4

  Soil sample data collected in-situ during the contamination investigation may be substituted for stockpile sampling if the investigation data has been collected within 90 days of the proposed land spread date.

- Only one sample need be analyzed from each individual batch of recovered spilled liquid; if liquids are collected and held in separate containers each container will require an analysis.

The following instructions will assist in completing the Land Application Calculation Form. The Form must be submitted when applying to land spread contaminated soil or water.

A List all contaminants detected in the soil individually, unless the products are to be combined due to additivity. Additive products must be listed together on the same line.

Certain pesticide families display similar biological activity, members of these families must be summed for application calculations to prevent crop damage. This policy is based upon information from pesticide manufacturers and pesticide labels (example: the Prowl label states that it is additive with trifluralin). The products which must be added are products which are not usually used together in the same crop year. Based on this information, you must add the following compounds:

- Acetanilide herbicides (acetochlor, alachlor, propachlor, metolachlor, and dimethenamid 2,4-D and 2,4-DB)
- All triazine herbicides (atrazine, cyanazine, metribuzine, prometon, propazine, simazine)
- EPTC, butylate, diallate and triallate,
- All nitroaniline herbicides (trifluralin, pendimethaline, ethalflualin, etc.)
- Total nitrogen = nitrate nitrogen + ammonia

B For pesticide labels, consult current EPA product labels for completion of this column. The label selected for each pesticide must be for the product spilled, if known. It the product is not known, and soil sample analysis does not identify the product, select the label for the product most commonly handled at the spill site. In cases where pesticides are additive, you must choose the label for the contaminant which was detected at the highest level, **unless** a more restrictive product is present.

C In cases were pesticides are additive, average or maximum concentrations of additive compounds must be added together (not averaged). For completion of the rest of this table, the total will be treated as a single compound.

If only 1 sample was collected from the soil pile, circle "Max." at the top of the column and list the concentration detected for each contaminant. If more than 1 sample was collected from the soil pile, circle "Ave." and list the average concentration for each contaminant detected. If in-situ data is to be used, you must circle "Max." and list the highest detection for each compound found in the excavation area. This calculation method will build in a safety factor and allow for excavation and land spreading without mixing the soil. An alternative to this approach is using a weighted average concentration for the contaminants detected (care must be taken to ensure that the pile is thoroughly mixed prior to spreading if a weighted average concentration is used). To use the weighted average concentration, circle "Ave." at the top of the column and list the weighted average concentration (in ppm), calculated as indicated below for each contaminant selected.

Weighted Average Calculation

1) multiply: contaminant concentration (in ppm) x proportional extent of sample (% of excavation area represented by sample ÷100 = proportionate concentration (in ppm).

2) add all proportionate concentrations = weighted average concentration (in ppm).

D Calculate the total quantity (in pounds) for each contaminant, using the concentration from column C (as described below). This calculation assumes a soil density of 2400 lb/yd^3. Alternatively, the site specific soil density may be used.

Total Quantity Calculation

1) multiply: volume of excavated soil (cubic yards) x 0.0024 million lb/yd^3 = millions of pounds of soil

2) for **pesticides**, multiply: (millions of pounds of soil) x (concentration in ppm) = pounds of pesticide

3) for **nitrogen**, multiply: (millions of pounds of soil) x [(conc. of TKN, ppm) + (conc. of nitrate-nitrogen, ppm)] = pounds of nitrogen

E Write in the labeled crop(s) selected. If the contaminated material will not be applied to a crop, write in the intended use; for example, if a spilled liquid will be applied to control weeds in ditches, pastures, CRP, etc.

F Using the label from column B, enter ½ of the lowest application rate listed for the soil texture and soil organic matter content and selected crop(s) at the proposed application site. If a pesticide is not labeled for a listed crop, fill in "N/A"(not applicable). The use of ½ of the lowest application rate builds in a safety factor. KDHE approval must be obtained for higher application rates. For nitrogen assume an application rate of 50 pounds per acre.

For each crop listed and contaminant present, calculate the acres required to land apply the excavated soil using the <u>total quantity</u> from the excavated soil pile and the application rate.

To calculate the minimum area required to land apply soil divide (total quantity in pounds)/(application rate in pounds per acre) = minimum acreage required.